PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference	FOR FURTHER		see Form PCT/ISA/220
DK62208PC	ACTION		as, where applicable, item 5 below.
International application No.	International filing date (day/mon	th/year)	(Earliest) Priority Date (day/month/year)
PCT/EP2004/011632	15/10/2004	L	17/10/2003
Applicant			
DKFZ DEUTSCHES KREBSFORSCH	IUNGSZENTRUM		
This International Search Report has been according to Article 18. A copy is being tra	prepared by this International Seansmitted to the International Burea	rching Auth u.	ority and is transmitted to the applicant
This International Search Report consists	of a total of <u>16</u> sh	eets.	
X It is also accompanied by	a copy of each prior art document	cited in this i	report.
Basis of the report a. With regard to the language, the illinguage in which it was filed, unle	nternational search was carried ou ess otherwise indicated under this i	t on the bas tem.	is of the international application in the
The international this Authority (Rul	search was carried out on the basis e 23.1(b)).	of a transla	ation of the international application furnished to
b. X With regard to any nucleo	otide and/or amino acid sequence	e disclosed i	in the international application, see Box No. I.
2. Certain claims were fou	nd unsearchable (See Box II).		
3. X Unity of invention is lack	king (see Box III).		
4. With regard to the title,			
X the text is approved as su	bmitted by the applicant.		
the text has been establish	hed by this Authority to read as followed	ows:	
5. With regard to the abstract,			
X the text is approved as su	• • • • • • • • • • • • • • • • • • • •		
the text has been establis may, within one month fro	hed, according to Rule 38.2(b), by m the date of mailing of this interna	this Authorit Itional searc	y as it appears in Box No. IV. The applicant the report, submit comments to this Authority.
6. With regard to the drawings ,			
a. the figure of the drawings to be p	ublished with the abstract is Figure	No	
as suggested by t	•••		
	s Authority, because the applicant	•	
	s Authority, because this figure bet e published with the abstract.	er cnaracte	nzes the invention.

International application No.

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Вох	No. I	Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)
1.	With inver	regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed ntion, the international search was carried out on the basis of:
	a.	type of material X a sequence listing table(s) related to the sequence listing
	b.	format of material X in written format X in computer readable form
	с.	time of filing/furnishing X contained in the international application as filed X filed together with the international application in computer readable form furnished subsequently to this Authority for the purpose of search
2.	Addi	In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished. Ititional comments:
3.	Addi	illunal confinents.

International application No. PCT/EP2004/011632

INTERNATIONAL SEARCH REPORT

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)
This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:
1. Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:
2. Claims Nos.: because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).
Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)
This International Searching Authority found multiple inventions in this international application, as follows:
see additional sheet
As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: 1, 6-8, 18, 19, 24 (completely); 4, 9-10, 10-17, 24 (partially)
Remark on Protest The additional search fees were accompanied by the applicant's protest. No protest accompanied the payment of additional search fees.

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1, 4 in part, 6-8, 9-10 in part, 13-17 in part, 18, 19, 24 in part

Use of ADAM 12 protein or a nucleic acid molecule comprising a nucleic acid with a sequence of ADAM 12 for diagnosis of preeclampsia or a related syndrome; or a method for diagnosis of preeclampsia or a related syndrome comprising:
i) bringing a biopsy or bodily fluid sample in contact with a nucleic acid molecule comprising a nucleic acid with a sequence of ADAM 12, and ii) detecting the binding of the nucleic acid; or the use of a nucleic acid molecule comprising a nucleic acid with a sequence of ADAM 12 for the manufacture of a diagnostic for the diagnosis of preeclampsia or a related syndrome; or a diagnostic or a diagnostic kit containing a nucleic acid molecule comprising a nucleic acid molecule with a sequence of ADAM 12; or use of a nucleic acid molecule with a sequence of ADAM 12 for the manufacture of a medicament for the treatment of preeclampsia or a related syndrome.

2. claims: 2-5 in part, 9-10 in part, 11, 12, 13-17 in part, 20-28 in part

Use of a ligand binding specifically to ADAM 12 for diagnosis of preeclampsia or related syndrome; or a method for the identification of ligands binding specifically to ADAM 12 comprising contacting ADAM 12 with at least one candidate for a ligand, and ii) measuring the binding of the candidate for a ligand to ADAM 12; or a method for diagnosis of preeclampsia or a related syndrome comprising: i) bringing a biopsy or bodily fluid sample in contact with a specifically binding ligand to ADAM 12 and ii) detecting the binding of ligand; or the use of a ligand binding to ADAM 12 for the manufacture of a diagnostic for the diagnosis of preeclampsia or a related syndrome; or a diagnostic or a diagnostic kit containing a ligand binding to ADAM 12; or use of an inhibitor of the biological activity ADAM 12 for the manufacture of a medicament for the treatment of preeclampsia or a related syndrome; or use of ADAM 12 for the identification of an inhibitor of ADAM 12; a method for identification of an inhibitor of the biological activity of ADAM 12 comprising: i) contacting ADAM 12 with a suitable substrate, and ii) measuring the decrease in processing of the substrate in the presence as compared to the absence of a candidate for an inhibitor molecule; a method for the preparation of a pharmaceutical composition wherein an inhibitor of ADAM 12 synthesized in adequate amounts, and formulated into a pharmaceutical composition. Wherein the ligand or inhibitor is a disintegrin domain metalloproteinase inhibitors, in particular KB-R7785 or a derivative thereof.

3. claims: 2-5 in part, 9-17 in part, 20-28 in part

Use of a ligand binding specifically to ADAM 12 for diagnosis of preeclampsia or related syndrome; or a method for the identification of ligands binding specifically to ADAM 12 comprising contacting ADAM 12 with at least one candidate for a ligand, and ii) measuring the binding of the candidate for a ligand to ADAM 12; or a method for diagnosis of preeclampsia or a related syndrome comprising: i) bringing a biopsy or bodily fluid sample in contact with a specifically binding ligand to ADAM 12 and ii) detecting the binding of ligand; or the use of a ligand binding to ADAM 12 for the manufacture of a diagnostic for the diagnosis of preeclampsia or a related syndrome; or a diagnostic or a diagnostic kit containing a ligand binding to ADAM 12; or use of an inhibitor of the biological activity ADAM 12 for the manufacture of a medicament for the treatment of preeclampsia or a related syndrome; or use of ADAM 12 for the identification of an inhibitor of ADAM 12: a method for identification of an inhibitor of the biological activity of ADAM 12 comprising: i) contacting ADAM 12 with a suitable substrate, and ii) measuring the decrease in processing of the substrate in the presence as compared to the absence of a candidate for an inhibitor molecule: a method for the preparation of a pharmaceutical composition wherein an inhibitor of ADAM 12 synthesized in adequate amounts, and formulated into a pharmaceutical composition. Wherein the ligand or inhibitor is a TIMP, in particular TIMP-1, TIMP-2, or TIMP-3.

4. claims: 2-5 in part, 9-17 in part, 20 in part, 21 in part, 23-28 in part

Use of a ligand binding specifically to ADAM 12 for diagnosis of preeclampsia or related syndrome; or a method for the identification of ligands binding specifically to ADAM 12 comprising contacting ADAM 12 with at least one candidate for a ligand, and ii) measuring the binding of the candidate for a ligand to ADAM 12; or a method for diagnosis of preeclampsia or a related syndrome comprising: i) bringing a biopsy or bodily fluid sample in contact with a specifically binding ligand to ADAM 12 and ii) detecting the binding of ligand; or the use of a ligand binding to ADAM 12 for the manufacture of a diagnostic for the diagnosis of preeclampsia or a related syndrome; or a diagnostic or a diagnostic kit containing a ligand binding to ADAM 12. Wherein the ligand is IGFBP-3 or IGFBP-5.

Use of a ligand binding specifically to ADAM 12 for diagnosis of preeclampsia or related syndrome; or a method for the identification of ligands binding specifically to ADAM 12 comprising contacting ADAM 12 with at least one candidate for a ligand, and ii) measuring the binding of the candidate for a ligand to ADAM 12; or a method for diagnosis of preeclampsia or a related syndrome comprising: i) bringing a biopsy or bodily fluid sample in contact with a specifically binding ligand to ADAM 12 and ii) detecting the binding of ligand; or the use of a ligand binding to ADAM 12 for the manufacture of a diagnostic for the diagnosis of preeclampsia or a related syndrome; or a diagnostic or a diagnostic kit containing a ligand binding to ADAM 12. Wherein the ligand is HB-EGF.

6. claims: 2-5 in part, 9-17 in part, 20-28 in part

Use of a ligand binding specifically to ADAM 12 for diagnosis of preeclampsia or related syndrome; or a method for the identification of ligands binding specifically to ADAM 12 comprising contacting ADAM 12 with at least one candidate for a ligand, and ii) measuring the binding of the candidate for a ligand to ADAM 12; or a method for diagnosis of preeclampsia or a related syndrome comprising: i) bringing a biopsy or bodily fluid sample in contact with a specifically binding ligand to ADAM 12 and ii) detecting the binding of ligand; or the use of a ligand binding to ADAM 12 for the manufacture of a diagnostic for the diagnosis of preeclampsia or a related syndrome; or a diagnostic or a diagnostic kit containing a ligand binding to ADAM 12; or use of an inhibitor of the biological activity ADAM 12 for the manufacture of a medicament for the treatment of preeclampsia or a related syndrome; or use of ADAM 12 for the identification of an inhibitor of ADAM 12: a method for identification of an inhibitor of the biological activity of ADAM 12 comprising: i) contacting ADAM 12 with a suitable substrate, and ii) measuring the decrease in processing of the substrate in the presence as compared to the absence of a candidate for an inhibitor molecule; a method for the preparation of a pharmaceutical composition wherein an inhibitor of ADAM 12 synthesized in adequate amounts, and formulated into a pharmaceutical composition. Wherein the ligand or inhibitor is alpha2-macroglobulin.

Use of a ligand binding specifically to ADAM 12 for diagnosis of preeclampsia or related syndrome; or a method for the identification of ligands binding specifically to ADAM 12 comprising contacting ADAM 12 with at least one candidate for a ligand, and ii) measuring the binding of the candidate for a ligand to ADAM 12; or a method for diagnosis of preeclampsia or a related syndrome comprising: i) bringing a biopsy or bodily fluid sample in contact with a specifically binding ligand to ADAM 12 and ii) detecting the binding of ligand; or the use of a ligand binding to ADAM 12 for the manufacture of a diagnostic for the diagnosis of preeclampsia or a related syndrome; or a diagnostic or a diagnostic kit containing a ligand binding to ADAM 12. Wherein the ligand is PKC-delta.

8. claims: 2-5 in part, 9-17 in part, 20 in part, 21 in part, 23-28 in part

Use of a ligand binding specifically to ADAM 12 for diagnosis of preeclampsia or related syndrome; or a method for the identification of ligands binding specifically to ADAM 12 comprising contacting ADAM 12 with at least one candidate for a ligand, and ii) measuring the binding of the candidate for a ligand to ADAM 12; or a method for diagnosis of preeclampsia or a related syndrome comprising: i) bringing a biopsy or bodily fluid sample in contact with a specifically binding ligand to ADAM 12 and ii) detecting the binding of ligand; or the use of a ligand binding to ADAM 12 for the manufacture of a diagnostic for the diagnosis of preeclampsia or a related syndrome; or a diagnostic or a diagnostic kit containing a ligand binding to ADAM 12. Wherein the ligand is alpha-actinin or alpha-actinin-2.

9. claims: 2-5 in part, 9-17 in part, 20 in part, 21 in part, 23-28 in part

Use of a ligand binding specifically to ADAM 12 for diagnosis of preeclampsia or related syndrome; or a method for the identification of ligands binding specifically to ADAM 12 comprising contacting ADAM 12 with at least one candidate for a ligand, and ii) measuring the binding of the candidate for a ligand to ADAM 12; or a method for diagnosis of preeclampsia or a related syndrome comprising: i) bringing a biopsy or bodily fluid sample in contact with a specifically binding ligand to ADAM 12 and ii) detecting the binding of ligand; or the use of a ligand binding to ADAM 12 for the manufacture of a diagnostic for the diagnosis of preeclampsia or a related syndrome; or a diagnostic or a diagnostic kit containing a ligand binding to ADAM 12. Wherein the ligand is src.

10. claims: 2-5 in part, 9-17 in part, 20 in part, 21 in part, 23-28 in part

Use of a ligand binding specifically to ADAM 12 for diagnosis of preeclampsia or related syndrome; or a method for the identification of ligands binding specifically to ADAM 12 comprising contacting ADAM 12 with at least one candidate for a ligand, and ii) measuring the binding of the candidate for a ligand to ADAM 12; or a method for diagnosis of preeclampsia or a related syndrome comprising: i) bringing a biopsy or bodily fluid sample in contact with a specifically binding ligand to ADAM 12 and ii) detecting the binding of ligand; or the use of a ligand binding to ADAM 12 for the manufacture of a diagnostic for the diagnosis of preeclampsia or a related syndrome; or a diagnostic or a diagnostic kit containing a ligand binding to ADAM 12. Wherein the ligand is Grb-2.

11. claims: 2-5 in part, 9-17 in part, 20 in part, 21 in part, 23-28 in part

Use of a ligand binding specifically to ADAM 12 for diagnosis of preeclampsia or related syndrome; or a method for the identification of ligands binding specifically to ADAM 12 comprising contacting ADAM 12 with at least one candidate for a ligand, and ii) measuring the binding of the candidate for a ligand to ADAM 12; or a method for diagnosis of preeclampsia or a related syndrome comprising: i) bringing a biopsy or bodily fluid sample in contact with a specifically binding ligand to ADAM 12 and ii) detecting the binding of ligand; or the use of a ligand binding to ADAM 12 for the manufacture of a diagnostic for the diagnosis of preeclampsia or a related syndrome; or a diagnostic or a diagnostic kit containing a ligand binding to ADAM 12. Wherein the ligand is syndecan-4.

12. claims: 2-5 in part, 9-17 in part, 20-28 in part

Use of a ligand binding specifically to ADAM 12 for diagnosis of preeclampsia or related syndrome; or a method for the identification of ligands binding specifically to ADAM 12 comprising contacting ADAM 12 with at least one candidate for a ligand, and ii) measuring the binding of the candidate for a ligand to ADAM 12; or a method for diagnosis of preeclampsia or a related syndrome comprising: i) bringing a biopsy or bodily fluid sample in contact with a specifically binding ligand to ADAM 12 and ii) detecting the binding of ligand; or the use of a ligand binding to ADAM 12 for the manufacture of a diagnostic for the diagnosis of preeclampsia or a related syndrome; or a diagnostic or a diagnostic kit containing a ligand binding to ADAM 12; or use of an inhibitor of the biological activity ADAM 12 for the manufacture of a medicament for the treatment of preeclampsia or a related syndrome; or use of ADAM 12 for the identification of an inhibitor of ADAM 12; a method for identification of an inhibitor of the biological activity of ADAM 12 comprising: i) contacting ADAM 12 with a suitable substrate, and ii) measuring the decrease in processing of the substrate in the presence as compared to the absence of a candidate for an inhibitor molecule; a method for the preparation of a pharmaceutical composition wherein an inhibitor of ADAM 12 synthesized in adequate amounts, and formulated into a pharmaceutical composition. Wherein the ligand or inhibitor is an antibody, or the ligand is a nucleic acid or protein aptamer.

Use of a ligand binding specifically to ADAM 12 for diagnosis of preeclampsia or related syndrome; or a method for the identification of ligands binding specifically to ADAM 12 comprising contacting ADAM 12 with at least one candidate for a ligand, and ii) measuring the binding of the candidate for a ligand to ADAM 12; or a method for diagnosis of preeclampsia or a related syndrome comprising: i) bringing a biopsy or bodily fluid sample in contact with a specifically binding ligand to ADAM 12 and ii) detecting the binding of ligand; or the use of a ligand binding to ADAM 12 for the manufacture of a diagnostic for the diagnosis of preeclampsia or a related syndrome; or a diagnostic or a diagnostic kit containing a ligand binding to ADAM 12; or use of an inhibitor of the biological activity ADAM 12 for the manufacture of a medicament for the treatment of preeclampsia or a related syndrome; or use of ADAM 12 for the identification of an inhibitor of ADAM 12; a method for identification of an inhibitor of the biological activity of ADAM 12 comprising: i) contacting ADAM 12 with a suitable substrate, and ii) measuring the decrease in processing of the substrate in the presence as compared to the absence of a candidate for an inhibitor molecule; a method for the preparation of a pharmaceutical composition wherein an inhibitor of ADAM 12 synthesized in adequate amounts, and formulated into a pharmaceutical composition. Wherein the ligand or inhibitor is P-LAP.

Use of a ligand binding specifically to ADAM 12 for diagnosis of preeclampsia or related syndrome; or a method for the identification of ligands binding specifically to ADAM 12 comprising contacting ADAM 12 with at least one candidate for a ligand, and ii) measuring the binding of the candidate for a ligand to ADAM 12; or a method for diagnosis of preeclampsia or a related syndrome comprising: i) bringing a biopsy or bodily fluid sample in contact with a specifically binding ligand to ADAM 12 and ii) detecting the binding of ligand; or the use of a ligand binding to ADAM 12 for the manufacture of a diagnostic for the diagnosis of preeclampsia or a related syndrome; or a diagnostic or a diagnostic kit containing a ligand binding to ADAM 12; or use of an inhibitor of the biological activity ADAM 12 for the manufacture of a medicament for the treatment of preeclampsia or a related syndrome; or use of ADAM 12 for the identification of an inhibitor of ADAM 12; a method for identification of an inhibitor of the biological activity of ADAM 12 comprising: i) contacting ADAM 12 with a suitable substrate, and ii) measuring the decrease in processing of the substrate in the presence as compared to the absence of a candidate for an inhibitor molecule; a method for the preparation of a pharmaceutical composition wherein an inhibitor of ADAM 12 synthesized in adequate amounts, and formulated into a pharmaceutical composition.

Wherein the ligand or inhibitor is not comprised in the above-mentioned subjects 1-13.

International Application No PCT/EP2004/011632

A. CLASSIFICATION OF SUBJECT MATTER I PC 7 G01N33/68 C12Q1/68

C. DOCUMENTS CONSIDERED TO BE RELEVANT

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

 $\label{eq:minimum} \begin{array}{ll} \text{Minimum documentation searched} \ \, \text{(classification system followed by classification symbols)} \\ IPC \ 7 \ GO1N \ C12Q \end{array}$

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, BIOSIS, EMBASE, MEDLINE, CHEM ABS Data

Category °	Citation of document, with indication, where appropriate, of the rel	evant passages	Relevant to claim No.
x D4	GILPIN B J ET AL: "A novel, sec of human ADAM 12 (Meltrin alpha) myogenesis in vivo" JOURNAL OF BIOLOGICAL CHEMISTRY, SOCIETY OF BIOLOGICAL CHEMISTS, MD, US, vol. 273, no. 1, 2 January 1998 (1998-01-02), pag 157-166, XP002229017	provokes AMERICAN BALTIMORE,	15-17
	ISSN: 0021-9258		•
Υ	cited in the application page 157, left-hand column, line	1	1,4, 6-10,13, 14
	page 157, right-hand column, las paragraph - page 158, left-hand paragraph 1 page 165, left-hand column, para	column,	1 17
		-/	
X Furth	ner documents are listed in the continuation of box C.	X Patent family members are listed	in annex.
"A" docume consid "E" earlier of filing d "L" docume which citation "O" docume other of the reference of the	tegories of cited documents: ent defining the general state of the art which is not lered to be of particular relevance document but published on or after the international late ent which may throw doubts on priority claim(s) or is cited to establish the publication date of another n or other special reason (as specified) ent referring to an oral disclosure, use, exhibition or means ent published prior to the international filing date but han the priority date claimed	"T" later document published after the integration or priority date and not in conflict with cited to understand the principle or the invention "X" document of particular relevance; the cannot be considered novel or cannot involve an inventive step when the document of particular relevance; the cannot be considered to involve an indocument is combined with one or ments, such combination being obvious the art. "&" document member of the same patent	the application but early underlying the claimed invention to considered to coument is taken alone claimed invention wentive step when the ore other such doculus to a person skilled
Date of the	actual completion of the international search	Date of mailing of the international sea	arch report
6	January 2005	0 1 04 2005	
Name and I	mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,	Authorized officer	
	Fax: (+31-70) 340-3016	Marttin, E	

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	ation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages		Relevant to claim No
A D4	DATABASE WPI Section Ch, Week 198715 Derwent Publications Ltd., London, GB; Class B04, AN 1987-106528 XP002272283 & SU 1 250 257 A (MOSC SECOND MED INS) 15 August 1986 (1986-08-15) abstract		1,4, 6-10, 13-19,24
A DS	WO 99/46597 A (DIAGNOSTIC SYSTEMS LAB INC) 16 September 1999 (1999-09-16) page 8, line 22 - page 9, line 2; claims 17,18; example 5		1,4, 6-10, 13-19,24
A	LEACH R E ET AL: "Pre-eclampsia and expression of heparin-binding EGF-like growth factor" LANCET, XX, XX, vol. 360, no. 9341,		1,4, 6-10, 13-19,24
D	19 October 2002 (2002-10-19), pages 1215-1219, XP004388635 ISSN: 0140-6736 page 1218, left-hand column, line 13 - right-hand column, line 22		
P,X	US 2004/002467 A1 (DOBIE KENNETH W ET AL) 1 January 2004 (2004-01-01) paragraphs [0010] - [0015], [0031]		15,16

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Information on patent family members

International Application No
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